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TITLE: DETECTION OF DEFECTIVE MOUNTING OF CHIP COMPONENT

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COUNTRY

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US-CL-CURRENT: 438/17

ABSTRACT:

PURPOSE: To easily and surely detect defective mounting of a chip component such as omission, displacement, detachment or the like by a method wherein an adhesive mixed with a fluorescent agent is coated on a part to mount the chip component and the existence of fluorescence is observed in a darkroom.

CONSTITUTION: A recessed part 5 to house a substrate 1 is made on an upper face of a darkroom 4. An adhesive 2 is coated on a part to mount a chip component 3 on the substrate 1. The chip component 3 is pressed onto the part to mount the component and coated with the adhesive 2. The substrate 1 where the chip component 3 is mounted is housed in the recessed part 5 of the darkroom 4 and is observed visually from an upper part of the recessed part 5. During this process, if the chip component 3 is mounted on the prescribed part, the chip component 3 covers the adhesive 2 and the fluorescence of the adhesive 2 is shut off and cannot be confirmed visually; it is detected that no defective

mounting exists. To the contrary, if the chip component 3 is detached as indicated by B, the adhesive 2 is exposed on the surface of the substrate 1, its fluorescence can be confirmed visually, and the defective mounting can be detected.

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⑭ 発明の名称 チップ部品の搭載不良検出方法

⑮ 特願 昭62-190112

⑯ 出願 昭62(1987)7月31日

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明細書

1. 発明の名称

チップ部品の搭載不良検出方法

2. 特許請求の範囲

チップ部品を搭載したチップ部品の搭載部位に接着剤を盛入した接着剤が塗布された基板を、暗室に収納して樹脂の有無を観察することを特徴とするチップ部品の搭載不良検出方法。

3. 発明の詳細な説明

【産業上の利用分野】

本発明は、チップ部品を基板に搭載する際、チップ部品の搭載られ、ずれ、脱落等の搭載不良を検出する方法に関する。

【従来の技術】

従来、この種のチップ部品の搭載不良を検出する方法は、基板に搭載するチップ部品のパターンに応じたマスクを用いて行なっていた。すなわち、第2図に示すように、チップ部品3が搭載さ

れた基板1に、チップ部品3の基板1への搭載部位に対応する部位に検出孔6が穿設されたマスク7を被せ、このマスク7を介して基板1を目視により観察して検出していた。

例えば、図においてチップ部品3の搭載部位Aにチップ部品が脱落して搭載されていないとすると、対応する検出孔6を介してチップ部品3を確認することができます。搭載部位Aにチップ部品3の搭載不良が発生したことを検出できる。

【解決すべき問題点】

上述した従来のチップ部品の搭載不良検出方法は、各基板1のチップ部品3の搭載パターン毎にマスクを作製しなければならず、経済的でないという問題点があった。また、マスク7の位置合せを正確に行なわなければならず、検出作業が面倒であるという問題点があった。

本発明は上記の問題点にかんがみてなされたもので、接着剤を盛入した接着剤でチップ部品を基板に接着した後、この基板を暗室に収納して観察

し螢光の有無を確認することにより、簡単かつ安価なチップ部品の搭載不良検出方法の提供を目的とする。

【問題点の解決手段】

上記目的を達成するため本発明のチップ部品の搭載不良検出方法は、チップ部品を搭載したチップ部品の搭載部位に螢光剤を混入した接着剤が塗布された基板を、暗室に収納して螢光の有無を観察する方法としてある。

【実施例】

次に、本発明の一実施例について第1図を参照して説明する。

第1図は本発明の一実施例に用いる装置の斜視図である。この図において、1は基板で、この基板1には、基板1表面に塗布され、かつ螢光剤が混入された接着剤2を介してチップ部品3が搭載されている。4は暗室で、この暗室4の上面には、基板1を収納するための凹部5が穿設されている。

なお、螢光量の観察は、センサ等を用いて自動的に行なうこと也可能である。

【発明の効果】

以上説明したように本発明は、螢光剤を混入した接着剤をチップ部品搭載部位に塗布し、暗室で螢光の有無を観察することにより、容易かつ確実にチップ部品のもれ、すれ、脱落等の搭載不良を検出でき、しかも、安価であるという効果がある。

4. 図面の簡単な説明

第1図は本発明の一実施例に用いる装置の斜視図、第2図は従来例に用いる装置の斜視図を示す。

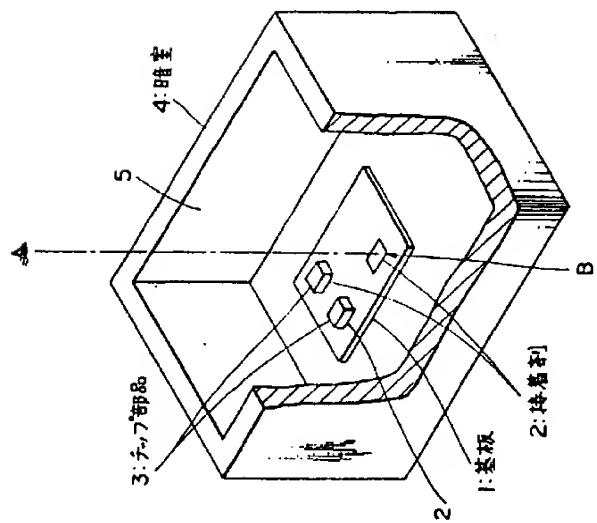
1・・・基板 2・・・接着剤
3・・・チップ部品 4・・・暗室

以上のような装置において、チップ部品3の搭載不良を検出するには、まず、基板1のチップ部品3の搭載部位に接着剤2を塗布する。次に、この接着剤2が塗布された搭載部位にチップ部品3を打ち込む。そして、チップ部品3が搭載された基板1を、暗室4の凹部5に収納し、凹部5上方から目視観察する。

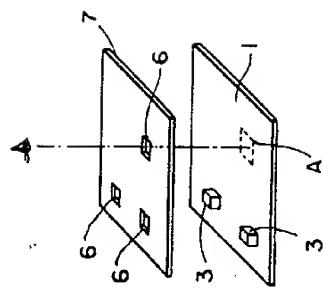
このとき、チップ部品3が所定の搭載部位に搭載されていると、チップ部品3が接着剤2を被い接着剤2の螢光は遮ざられ、目視により確認されず搭載不良が無いことが分かる。これに対し、たとえば図中B部のようにチップ部品3が脱落していると、接着剤2は基板1表面に漏出状態となり、その螢光は目視により確認され搭載不良が検出される。また、チップ部品3が所定の搭載部位からずれているときは、接着剤2が部分的に基板1表面に露出し、その螢光の量でチップ部品3が所定の搭載部位より離れて搭載されていることが検出できる。

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第一図



第二図



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1. Patent

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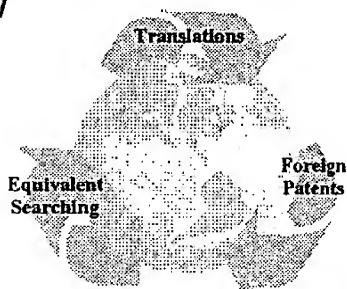
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DEFECTIVE CHIP-MOUNTING DETECTION METHOD

CLAIM(S)

A detection method for defective chip-mounting characterized in that a substrate, which is mounted with a chip and whose chip-mounting location is coated with an adhesive containing a fluorescent agent, is accommodated in a dark room to observe the presence or absence of the fluorescent light.

DETAILED DESCRIPTION OF THE INVENTION

(Field of Industrial Application)

The present invention pertains to a detection method for defective chip-mounting on a substrate, such as failure to mount, displacement, falling of chips.

(Prior Art)

The prior art detection method for defective chip-mounting used a mask corresponding to a pattern of chip to be mounted on a substrate. As shown in Fig. 2, mask 7, in which is made detection hole 6 at the location corresponding to the chip-mounting location of the substrate 1, is put on the substrate 1 on which chip 3 is mounted, and via this mask 7, the substrate 1 is detected by visual observation.

For example, in the figure, if a chip falls and is not mounted at the location A where the chip 3 should be mounted, the presence of chip 3 cannot be confirmed via the corresponding detection hole 6, by which can be detected that defective mounting of chip 3 has occurred to the mounting location A.

(Problems of the Prior Art to Be Addressed)

With the prior art defective chip-mounting detection method, a mask needs to be made per each pattern of the chip 3 on each substrate 1, which is not economical. Also, the mask needs to be positioned accurately, which makes the detection operation tedious.

The present invention, to solve the aforementioned problems, attempts to present a simple and inexpensive defective chip-mounting detection method by bonding a chip to a substrate with an adhesive mixed with a fluorescent agent, accommodating said substrate in a dark room, and by confirming the presence or absence of the fluorescent light.

(Means to Solve the Problems)

To accomplish the aforementioned objective, a detection method of defective chip-mounting uses a method, wherein a substrate, on which is mounted a chip, and whose chip-mounting location is coated with an adhesive containing a fluorescent agent, is accommodated in a dark room to observe the presence or absence of the fluorescent light.

(Embodiment)

Fig. 1 shows one embodiment example of the present invention.

Fig. 1 shows an oblique view of the device used for the embodiment example of the present invention. In the figure, 1 indicates the substrate, on which is mounted chip 3 via adhesive 2 which contains a fluorescent agent and which is coated on the surface of the substrate. In the figure, 4 indicates the dark room, on top of which is made cavity 5 for accommodating the substrate 1.

To detect the defective mounting of a chip 3 by using the device thus structured, adhesive 2 is coated on the chip-mounting location of the substrate 1. Subsequently, the chip 3 is pressed against the mounting location where the adhesive 2 is coated. Then, the substrate 1 mounted with chip 3 is accommodated in the cavity 5 of the dark room 4 and is visually observed from above the cavity 5.

At this time, if the chip 3 is mounted at the prescribed mounting location, the chip 3 will cover the adhesive 2 and the fluorescent light is blocked, therefore, cannot be visually confirmed, which proves that the defective chip-mounting has not occurred. By contrast, if the chip 3 has fallen, as shown by B in the figure, the adhesive 2 is exposed on the surface of the substrate 1, so the fluorescent light is visually confirmed, which proves that defective mounting of a chip has occurred. When the chip is displaced from the prescribed location, the adhesive 2 is partially exposed on the surface of the substrate, so the amount of the fluorescent light indicates that the chip 3 is displaced from the prescribed mounting location.

In addition, the amount of the fluorescent light can be automatically observed by using a sensor.

(Advantage)

As explained above, in the present invention, by coating an adhesive containing a fluorescent agent on the chip-mounting location and by observing the presence or absence of the fluorescent light in the dark room, defective chip-mounting, such as a failure to mount a chip, its displacement of a chip, falling of a chip, can be detected by easily and surely. In addition, the method of the present invention comes with an advantage of low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows an oblique view of the device used for one embodiment example of the present invention. Fig. 2 shows an oblique view of the device used for the prior art example.

1. substrate
2. adhesive
3. chip
3. dark room

Translations
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Akiko Smith